

# Mirco Marchetti

## Curriculum Vitæ

### Personal information

**First name:** Mirco

**Last name:** Marchetti

**Date of birth:** July 6, 1981

**Place of birth:** Carpi (MO), Italy

**Citizenship:** Italian

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### Current affiliation

Associate professor at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia. In possession of the national scientific qualification for the competition sectors 09/H1 (from 14/04/2021) and 01/B1 (from 29/04/2021).

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### National Scientific Qualifications

29/04/2021	Scientific qualification for the first level role in the competitive sector 01/B1.
14/04/2021	Scientific qualification for the first level role in the competitive sector 09/H1.
07/08/2018	Scientific qualification for the second level role in the competitive sector 01/B1.
30/03/2018	Scientific qualification for the second level role in the competitive sector 09/H1.

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### Education

02/2009	<b>Doctor of Philosophy</b> PhD in <i>Computer Engineering and Science</i> from the <i>International Doctorate School in Information and Communication Technologies</i> , held by the Department of Information Engineering of the University of Modena and Reggio Emilia, under the supervision of Prof. Michele Colajanni. Thesis title: “Distributed architectures and algorithms for network security”.
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- 07/2006      **Qualification to the profession of Engineer**  
 Passed the national abilitation exam with an evaluation of 234/240 in the first session of 2006 at the University of Modena and Reggio Emilia.
- 12/2005      **Master's degree in Computer Engineering**  
 Score: 110/110 cum laude from the University of Modena and Reggio Emilia. Thesis title (translation of the original Italian title): "Stateful network intrusion detection over high speed links". Advisor: Prof. Michele Colajanni.
- 12/2003      **Bachelor's degree in Computer Engineering**  
 Score: 108/110 from the University of Modena and Reggio Emilia. Thesis title (translation of the original Italian title): "Firewalling with Cisco routers and iptables". Advisor: Prof. Michele Colajanni.

## PhD Schools

- FOSAD 08    *International School on Foundations of Security Analysis and Design*, August 25th-30th, 2008, Bertinoro, Italy.
- SWING 08    3rd Bertinoro *PhD School on Security of Wireless Networking*, July 27h-August 1st, 2008, Bertinoro, Italy.
- SWING 07    2nd Bertinoro *PhD School on Security of Wireless Networking*, August 26th-31st, 2007, Bertinoro, Italy.
- SWING 06    Bertinoro *PhD School on Security for Wireless Networking*, September 3rd-8th, 2006, Bertinoro, Italy.

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## Activities within Universities and Research Centers

- 11/2019-today      **Associate professor**  
 within the Engineering Department "Enzo Ferrari" (DIEF) of the University of Modena and Reggio Emilia.
- 11/2016-11/2019      **Researcher**  
 within the Engineering Department "Enzo Ferrari" (DIEF) of the University of Modena and Reggio Emilia.
- 07/2016-11/2016      **Assistant Researcher (senior level)**  
 within the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia. Research topic: "Algorithms and architectures for guaranteeing security of outsourced data".
- 07/2013-07/2016      **Assistant Researcher (senior level)**  
 within the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia. Research topic: "Scalable monitoring systems and security intelligence".

- 07/2011-07/2013    **Assistant Researcher (senior level)**  
 within the Interdepartmental Research Center on Security and Safety (CRIS) of the University of Modena and Reggio Emilia. Research topic: “Models, algorithms and prototypes for improving the security of geographically distributed systems and applications”.
- 01/2009-07/2011    **Assistant researcher**  
 within the Department of Information Engineering of the University of Modena and Reggio Emilia. Research topic: “Security of information systems and services of critical infrastructures”.
- 01/2006-12/2008    **PhD**  
 within the *International Doctorate School in Information and Communication Technologies*, organized by the Department of Information Engineering of the University of Modena and Reggio Emilia.

## International universities and research centers

- 03/2009-06/2009    **Visiting researcher**  
 at the department of Computer Science of the University of Texas at Austin (TX, USA). Supervisor: Prof. Lorenzo Alvisi.
- 11/2007-06/2008    **Visiting research scholar**  
 at the department of Computer Science of the University of Texas at Austin (TX, USA). Supervisor: Prof. Lorenzo Alvisi.

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## Publications

### International Journals

- [1] Andrea Venturi, Giovanni Apruzzese, Mauro Andreolini, Michele Colajanni, **Mirco Marchetti** “DReLAB-Deep REinforcement Learning Adversarial Botnet: A benchmark dataset for adversarial attacks against botnet Intrusion Detection Systems”, *Elsevier Data in Brief*, February 2021, Volume 34, ISSN: 2352-3409.
- [2] Giovanni Apruzzese, Mauro Andreolini, **Mirco Marchetti**, Andrea Venturi, Michele Colajanni “Deep reinforcement adversarial learning against botnet evasion attacks”, *IEEE Transactions on Network and Service Management*, October 2020, Volume 17, Issue 4, ISSN: 2373-7379.
- [3] Fabio Pierazzi, Stefano Cristalli, Danilo Bruschi, Michele Colajanni, **Mirco Marchetti**, Andrea Lanzi “Glyph: Efficient ML-Based Detection of Heap Spraying Attacks”, *IEEE Transactions on Information Forensics and Security*, August 2020, Volume 16, ISSN: 1556-6013.
- [4] Giovanni Apruzzese, Mauro Andreolini, **Mirco Marchetti**, Vincenzo Giuseppe Colacino, Giacomo Russo “AppCon: Mitigating evasion attacks to ML cyber detectors”, *Springer Mobile Networks and Applications*, April 2020, Volume 12, Issue 4, article number 653, ISSN: 2073-8994.
- [5] Mauro Andreolini, Vincenzo Giuseppe Colacino, Michele Colajanni, **Mirco Marchetti**, “A Framework for the Evaluation of Trainee Performance in Cyber Range Exercises”, *Springer Mobile Networks and Applications*, 2020, Volume 25, Issue 1, pag. 236-247, ISSN: 1383-469X.

- [6] Giovanni Apruzzese, Mauro Andreolini, Michele Colajanni, **Mirco Marchetti**, “Hardening random forest cyber detectors against adversarial attacks”, *IEEE Transactions on Emergint Topics in Computational Intelligence*, 2020, in press, ISSN: 2471-285X.
- [7] Tsvika Dagan, Avishai Wool, Yuval Montvelisky, **Mirco Marchetti**, Dario Stabili, Michele Colajanni “Vehicle safe-mode, concept to practice limp-mode in the service of cybersecurity”, *SAE International Journal of Transportation Cybersecurity and Privacy*, February 2020, Volume 3, Issue 1, ISSN: 2572-1046.
- [8] **Mirco Marchetti**, Dario Stabili “READ: Reverse engineering of automotive data frames”, *IEEE Transactions on Information Forensics and Security*, 2019, Volume 14, Issue 4, pag. 1083-1097, ISSN: 1556-6013.
- [9] Luca Ferretti, **Mirco Marchetti**, Michele Colajanni “Fog-based secure communication for low-power IoT devices”, *ACM Transactions on Internet Technologies*, 2019, Volume 19, Issue 2, article number 27, ISSN: 1533-5399.
- [10] Luca Ferretti, **Mirco Marchetti**, Michele Colajanni “Fog-based secure communication for low-power IoT devices”, *ACM Transactions on Internet Technologies*, 2019, Volume 19, Issue 2, article number 27, ISSN: 1533-5399.
- [11] Luca Ferretti, **Mirco Marchetti**, Mauro Andreolini, Michele Colajanni “A symmetric cryptographic scheme for data integrity verification in cloud databases”, *Elsevier Information Sciences*, , 2018, Volume 422, pag. 497-515, ISSN: 0020-0255.
- [12] Luca Ferretti, **Mirco Marchetti**, Mauro Andreolini, Michele Colajanni “A symmetric cryptographic scheme for data integrity verification in cloud databases”, *Elsevier Information Sciences*, , 2018, Volume 422, pag. 497-515, ISSN: 0020-0255.
- [13] Giovanni Apruzzese, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Detection and threat prioritization of pivoting attacks in large networks”, *IEEE Transactions on Emerging Topics in Computer Science*, 2017, in press, ISSN: 2168-6750.
- [14] **Mirco Marchetti**, Fabio Pierazzi, Michele Colajanni, Alessandro Guido, “Analysis of high volumes of network traffic for Advanced Persistent Threat detection”, *Elsevier Computer Networks Journal*, November 2016, Volume 109, pag. 127-141, ISSN: 1389-1286.
- [15] Fabio Pierazzi, Sara Casolari, Michele Colajanni, **Mirco Marchetti**, “Exploratory security analytics for anomaly detection”, *Elsevier Computers & Security Journal*, February 2016, Volume 56, pag. 28-49, ISSN: 0167-4048.
- [16] Mauro Andreolini, Michele Colajanni, **Mirco Marchetti**, “A collaborative framework for intrusion detection in mobile networks”, *Elsevier Information Sciences*, Vol 31, November 2015, ISSN: 0020-0255.
- [17] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Scalable architecture for multi-user encrypted SQL operations on cloud database services”, *IEEE Transactions on Cloud Computing*, Volume 2, Number 4, 2014, ISSN: 2168-7161.
- [18] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Performance and cost evaluation of an adaptive encryption architecture for cloud databases”, in *IEEE Transactions on Cloud Computing*, Volume 2, Numero 2, 2014. ISSN: 2168-7161.
- [19] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, “Distributed, concurrent, and independent access to encrypted cloud databases”, *IEEE Transactions on Parallel and Distributed Systems*, Volume 25, Number 2, February 2014. ISSN: 1045-9219. **Selected as spotlight paper.**

- [20] **Mirco Marchetti**, Michele Colajanni, Fabio Manganiello, “Framework and Models for Multistep Attack Detection”, *International Journal on Security and its Applications*, Volume 5, Number 4, October 2011, ISSN: 1738-9976.

## Book chapters

- [21] **Mirco Marchetti**, Michele Colajanni, “Cooperative approaches to SIEM and Intrusion Detection”, chapter in the book *Advances in Security Information Management*, Nova Publishing, January 2013, ISBN: 978-1-62417-204-5.
- [22] Enrico Angori, Michele Colajanni, **Mirco Marchetti**, Michele Messori, “Collaborative attack detection using Distributed Hash Tables”, chapter in the book *Collaborative Financial Infrastructure Protection: Tools, Abstractions and Middleware*, Springer, January 2012, ISBN 978-3-642-20419-7.
- [23] **Mirco Marchetti**, Michele Colajanni, Michele Messori, Leonardo Aniello, Ymir Vigfusson, “Cyber attacks on financial critical infrastructures”, chapter in the book *Collaborative Financial Infrastructure Protection: Tools, Abstractions and Middleware*, Springer, January 2012, ISBN 978-3-642-20419-7.

## International conferences

- [24] Francesco Pollicino, Dario Stabili, Luca Ferretti, **Mirco Marchetti**, “An experimental analysis of ECQV implicit certificates performance in VANETs”, Proc. of the *IEEE 92nd Vehicular Technology Conference (VTC 2020-fall)*, Honolulu, USA, September 2020. ISBN: 978-1-7281-9484-4.
- [25] Dario Stabili, **Mirco Marchetti**, “Detection of missing CAN messages through inter-arrival time analysis”, Proc. of the *IEEE Vehicular Technology Conference (VTC 2019)*, Honolulu, USA, September 2019. ISBN: 978-172811220-6.
- [26] Giovanni Apruzzese, Michele Colajanni, **Mirco Marchetti**, “Evaluating the effectiveness of Adversarial Attacks against Botnet Detectors”, Proc. of the *IEEE 18th International Symposium on Network Computing and Applications (NCA 2019)*, Boston, MA USA, September 2019. ISBN: 978-172812522-0.
- [27] Giovanni Apruzzese, Michele Colajanni, Luca Ferretti, **Mirco Marchetti**, “Addressing Adversarial Attacks Against Security Systems Based on Machine Learning”, Proc. of the *11th NATO International Conference on Cyber Conflicts (CyCon 2019)*, Tallin, Estonia, May 2019. ISBN: 978-994999044-3.
- [28] Gianfranco Burzio, Giuseppe Faranda Cordella, Michele Colajanni, Dario Stabili, **Mirco Marchetti**, “Cybersecurity of Connected Autonomous Vehicles : A ranking based approach”, Proc. of the *2018 International Conference of Electrical and Electronic Technologies for Automotive (AUTOMOTIVE 2018)*, Milan, Italy, July 2018. ISBN: 978-888723738-2.
- [29] Dario Stabili, Luca Ferretti, **Mirco Marchetti**, “Analyses of secure automotive communication protocols and their impact on vehicles life-cycle”, Proc. of the *2018 IEEE International Conference on Smart Computing (SMARTCOMP 2018)*, Taormina, Italy, June 2018. ISBN: 978-153864705-9.
- [30] Giovanni Apruzzese, Michele Colajanni, Luca Ferretti, Alessandro Guido, **Mirco Marchetti**, “On the effectiveness of machine and deep learning for cyber security”, Proc. of the *10th NATO International Conference on Cyber Conflicts (CyCon 2018)*, Tallin, Estonia, May 2019. ISBN: 978-994999042-9.

- [31] Dario Stabili, **Mirco Marchetti**, Michele Colajanni, “Detecting attacks to internal vehicle networks through Hamming distance”, Proc. of the *2017 AEIT International Annual Conference: Infrastructures for Energy and ICT: Opportunities for Fostering Innovation* (AEIT 2017), Cagliari, Italy, September 2017. ISBN: 978-888723737-5.
- [32] Giovanni Apruzzese, **Mirco Marchetti**, Michele Colajanni, Gabriele Gambigliani Zoccoli, Alessandro Guido, “Identifying malicious hosts involved in periodic communications”, Proc. of the *IEEE 16th International Symposium on Network Computing and Applications* (NCA 2017), Boston, MA USA, November 2017. ISBN: 978-153861465-5.
- [33] Luca Ferretti, **Mirco Marchetti**, Michele Colajanni, “Verifiable delegated authorization for user-centric architectures and an OAuth2 implementation”, Proc. of the *3rd IEEE International COMPSAC Workshop on Secure Identity Management in the Cloud Environment* (SIMICE 2017), Turin, Italy, July 2017. ISBN: 978-153860367-3.
- [34] **Mirco Marchetti**, Dario Stabili, “Anomaly detection of CAN bus messages through analysis of ID sequences”, Proc. of the *2017 IEEE Intelligent Vehicles Symposium* (IV 2017), Redondo Beach, CA, USA, June 2017. ISBN: 978-9949-9544-8-3.
- [35] Fabio Pierazzi, Giovanni Apruzzese, Michele Colajanni, Alessandro Guido, **Mirco Marchetti**, “Scalable architecture for online prioritization of cyber threats”, Proc. of the *9th NATO International Conference on Cyber Conflicts* (CyCon 2017), Tallin, Estonia, June 2017. ISBN: 978-9949-9544-8-3.
- [36] Luca Ferretti, Michele Colajanni, and **Mirco Marchetti**, “Implementation of Verified Set Operation Protocols Based on Bilinear Accumulators”, Proc. of the *15th International Conference on Cryptology and Network Security* (CANS 2016), Milan, Italy, November 2016.
- [37] **Mirco Marchetti**, Dario Stabili, Alessandro Guido, Michele Colajanni, “Evaluation of entropy-based anomaly detection applied to in-vehicle networks”, Proc. of the *IEEE 2nd International Forum on Research and Technologies for Society and Industry* (RTSI 2016), Bologna, Italy, September 2016.
- [38] Luca Ferretti, **Mirco Marchetti**, Michele Colajanni, “Guaranteeing correctness of bulk operations in outsourced databases”, Proc. of the *30th Annual IFIP WG 11.3 Working Conference on Data and Applications Security and Privacy* (DBSec 2016), Trento, Italy, July 2016. ISBN: 978-3-319-41482-9.
- [39] **Mirco Marchetti**, Fabio Pierazzi, Alessandro Guido, Michele Colajanni, “Countering Advanced Persistent Threats through security intelligence and big data analytics”, Proc. of the *8th NATO International Conference on Cyber Conflicts* (CyCon 2016), Tallin, Estonia, June 2016. ISBN: 978-9949-9544-8-3.
- [40] Andrea Andreoli, Luca Ferretti, **Mirco Marchetti**, Michele Colajanni, “Enforcing correct behavior without trust in cloud key-value databases”, Proc. of the *2nd IEEE International Conference on Cyber Security and Cloud Computing* (CSCloud 2015), New York, USA, November 2015, ISBN: 978-1-46739-301-0.
- [41] Fabio Pierazzi, Andrea Balboni, Alessandro Guido, **Mirco Marchetti**, “The network perspective of cloud security”, Proc. of the *4th IEEE Symp. Network Cloud Computing and Applications* (NCCA 2015), Munich, Germany, June 2015, ISBN: 978-1-46737-742-3.

- [42] Andrea Balboni, Michele Colajanni, **Mirco Marchetti**, Andrea Melegari, “Supporting sense-making and decision-making through time evolution analysis of open sources”, Proc. of the *7th NATO International Conference on Cyber Conflicts* (CyCon 2015), Tallin, Estonia, May 2015, ISBN: 978-1-47998-812-9.
- [43] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, Marcello Missiroli, “Efficient detection of unauthorized data modification in cloud databases”, Proc. of the *19th IEEE Symposium on Computers and Communications* (ISCC 2014), Funchal, PT, June 2014, ISBN: 978-1-47994-276-3.
- [44] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, “Access control enforcement on query-aware encrypted cloud databases”, Proc. of the *5th IEEE International Conference on Cloud Computing Technology and Science* (CoudCom 2013), Bristol, UK, December 2013. ISBN: 978-0-7695-5095-4, ISSN: 2330-2186.
- [45] Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, “Security and confidentiality solutions for public cloud database services”, Proc. of the *7th International Conference on Emerging Security Information, Systems and Technologies*, Barcelona, Spain, August 2013. ISBN: 978-1-61208-298-1, ISSN: 2162-2116. **Selected as best paper.**
- [46] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, Adriano Enrico Scaruffi, “Transparent access on encrypted data distributed over multiple cloud infrastructures”, Proc. of the *4th International Conference on Cloud Computing, GRIDs, and Virtualization*, Valencia, Spain, May-June 2013. ISBN: 978-1-61208-271-4, ISSN: 2308-4294.
- [47] Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, “Supporting security and consistency for cloud database”, Proc. of the *4th International Symposium on Cyberspace Safety and Security* (CSS 2012), Melbourne, Australia, December 2012. ISBN 978-3-642-35361-1, ISSN: 0302-9743.
- [48] **Mirco Marchetti**, Michele Colajanni, Fabio Manganiello, “Identification of correlated network intrusion alerts”, Proc. of the *3rd International Workshop on Cyberspace Safety and Security* (CSS 2011), Milan, Italy, September 2011, ISBN 978-1-4577-1033-9.
- [49] Fabio Manganiello, **Mirco Marchetti**, Michele Colajanni, “Multistep Attack Detection and Alert Correlation in Intrusion Detection Systems”, Proc. of the *5th International Conference on Information Security and Assurance* (ISA 2011), Brno, Repubblica Ceca, August 2011, ISBN 978-3-642-23140-7.
- [50] Michele Colajanni, Luca Dal Zotto, **Mirco Marchetti**, Michele Messori, “Defeating NIDS evasion in Mobile IPv6 networks”, Proc. of the *12th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks* (WoWMoM 2011), Lucca, Italy, June 2011. ISBN: 978-1-4577-0350-8.
- [51] Michele Colajanni, Luca Dal Zotto, **Mirco Marchetti**, Michele Messori, “The problem of NIDS evasion in mobile networks”, Proc. of the *4th IFIP International Conference on New Technologies, Mobility and Security* (NTMS 2011), Paris, France, February 2011. ISBN: 978-1-4244-8705-9.
- [52] Michele Colajanni, **Mirco Marchetti**, Michele Messori, “Selective and early threat detection in large networked systems”, Proc. of the *10th IEEE International Conference on Computer and Information Technology* (CIT 2010), Bradford, UK, June 2010. ISBN: 978-0-7695-4108-2.
- [53] **Mirco Marchetti**, Michele Messori, Michele Colajanni, “Peer-to-peer Architecture for Collaborative Intrusion and Malware Detection on a Large Scale”, Proc. of the *12th Information Security Conference* (ISC 2009), Pisa, Italy, September 2009. ISBN: 978-3-642-04473-1. ISSN: 0302-9743.

- [54] Giorgia Lodi, Leonardo Querzoni, Roberto Baldoni, **Mirco Marchetti**, Michele Colajanni, Vita Bortnikov, Gregory Chockler, Eliezer Dekel, Gennady Laventman, Alexey Roytman, “Defending financial infrastructures through early warning systems: the intelligence cloud approach”, Proc. of the *5th Annual Workshop on Cyber Security and Information Intelligence Research: Cyber Security and Information Intelligence Challenges and Strategies (CSIIRW09)*, Oak Ridge, TN, USA, April 2009. ISBN: 978-1-60558-518-5.
- [55] Allen Clement, Edmund Wong, Lorenzo Alvisi, Mike Dahlin, **Mirco Marchetti**, “Making Byzantine Fault Tolerant Systems Tolerate Byzantine Faults”, Proc. of the *6th USENIX Symposium on Networked Systems Design and Implementation (NSDI 09)*, Boston, MA, USA, April 2009. ISBN: 978-1-931971-67-6.
- [56] Harry Li, Allen Clement, **Mirco Marchetti**, Manos Kapritsos, Luke Robison, Lorenzo Alvisi, Mike Dahlin, “FlightPath: Obedience vs. Choice in Cooperative Services”, Proc. of the *Usenix Symposium on Operating Systems Design and Implementation 2008 (OSDI 2008)*, San Diego, California, December 2008. ISBN: 978-1-931971-65-2.
- [57] **Mirco Marchetti**, Michele Colajanni, “Adaptive traffic filtering for efficient and secure IP-mobility”, Proc. of the *4th ACM International Workshop on QoS and Security for Wireless Networking (Q2SWinet 2008)*, Vancouver, British Columbia, Canada, October 2008. ISBN 978-1-60558-237-5.
- [58] Allen Clement, **Mirco Marchetti**, Edmund Wong, Lorenzo Alvisi, Mike Dahlin, “BFT: The time is now”, Proc. of *Large-scale Distributed Systems and Middleware (LADIS 2008)*, Newark, NY, USA, September 2008. ISBN: 978-1-60558-296-2.
- [59] Michele Colajanni, Daniele Gozzi, **Mirco Marchetti**, “Collaborative architecture for malware detection and analysis”, Proc. of the *IFIP 23rd International Information Security Conference (SEC 2008)*, Milano, Italy, September 2008. ISBN: 978-0-387-09698-8.
- [60] Michele Colajanni, Daniele Gozzi, **Mirco Marchetti**, “Selective alerts for the run-time protection of distributed systems”, Proc. of the *Ninth International Conference on Data Mining, Protection, Detection and other Security Technologies (DATAMINING 2008)*, Cadiz, Spain, May 2008. ISBN: 978-1-84564-110-8. ISSN: 1743-3517.
- [61] Michele Colajanni, Daniele Gozzi, **Mirco Marchetti**, “Enhancing interoperability and stateful analysis of cooperative network intrusion detection systems”, Proc. of the *ACM/IEEE Symposium on Architectures for Networking and Communication Systems (ACM/IEEE ANCS 2007)*, Orlando, FL, USA, December 2007. ISBN: 978-1-59593-945-6.
- [62] Mauro Andreolini, Sara Casolari, Michele Colajanni, **Mirco Marchetti**, “Dynamic load balancing for network intrusion detection systems based on distributed architectures”, Proc. of the *6th IEEE International Symposium on Network Computing and Applications (IEEE NCA07)*, Cambridge, MA, USA, July 2007. ISBN: 978-0-76952-922-6.
- [63] Michele Colajanni, **Mirco Marchetti**, “A Parallel Architecture for Stateful Intrusion Detection in High Traffic Networks”, Proc. of the *IEEE/IST Workshop on Monitoring, Attack Detection and Mitigation (MonAM 2006)*, Tubingen, Germany, September 2006. ISBN 3-937201-02-5. ISSN 1862-7803. **Selected as best paper.**

## Italian conferences

- [64] Michele Colajanni, *Mirco Marchetti*, Andrea Balboni, “Analisi temporale di sorgenti informative eterogenee”, Atti del *Cyber Defense Symposium 2015*, Chiavari, Italia, maggio 2015.



- [65] Saverio Verrascina, Daniele Gozzi, **Mirco Marchetti**, “Architettura collaborativa per la rilevazione e l’analisi di malware”, Atti del *5to convegno Net & System Security* (NSS 2007), Pisa, Italia, settembre 2007.

## Italian book chapters

- [66] Michele Colajanni, *Mirco Marchetti*, “Cyber attacks and defenses: current capabilities and future trends”, Chapter in the book *Technology and International Relations*, Edward Elgar Publishing, 2021. ISBN: 9781788976060.
- [67] Michele Colajanni, *Mirco Marchetti*, “Cyber security di Smart Road e veicoli a guida automatica”, Capitolo nel libro *Guida autonoma e smart roads*, curato da Luigi Cannarini, Domenico Crocco, Massimo Marciani, Mario Nobile, Saverio Palchetti, edito da DEI, giugno 2019. ISBN: 9788849647013.
- [68] *Mirco Marchetti*, Michele Colajanni, “La sicurezza del sistema informatico alla guida del veicolo”, Chapter in the book *Smart roads e driverless cars: tra diritto, tecnologie, etica pubblica*, curato da Simone Scagliarini, edito da Giappichelli, marzo 2019. ISBN: 9788892119956.
- [69] Saverio Verrascina, Daniele Gozzi, **Mirco Marchetti**, “Architettura collaborativa per la rilevazione e l’analisi di malware”, Atti del *5to convegno Net & System Security* (NSS 2007), Pisa, Italia, settembre 2007.

## Theses

- [70] **Mirco Marchetti**, “Distributed architectures and algorithms for network security”, PhD. Thesis, International Doctorate School in Information and Communication Technologies – Computer Engineering and Science, University of Modena and Reggio Emilia, February 2009.
- [71] **Mirco Marchetti**, “Stateful network intrusion detection su link ad alta velocità”, tesi di Laurea Specialistica in Ingegneria Informatica presso l’Università di Modena e Reggio Emilia, dicembre 2005.
- [72] **Mirco Marchetti**, “Firewalling mediante router Cisco e iptables”, tesi di Laurea in Ingegneria Informatica presso l’Università di Modena e Reggio Emilia, dicembre 2003.

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## Research activities

### Bibliometric indexes

Bibliometric indexes according to Google Scholar, as of May 22nd 2024:

Citations number	3600
h-index	28
i10-index	47

Please refer to the Google Scholar profile of Mirco Marchetti for updated bibliometric indexes: <https://scholar.google.it/citations?user=UdOISqYAAAAJ>.

Bibliometric indexes according to Scopus, as of May 22nd 2024:

Citations number	1962
h-index	22
Documents	83

Please refer to the Scopus profile of Mirco Marchetti for updated bibliometric indexes:  
<https://www.scopus.com/authid/detail.uri?authorId=24462527900>.

## Research topics

Mirco Marchetti's research activities relates to the following topics:

- distributed fault-tolerant systems;
- distributed systems security;
- cybersecurity for cyber-physical systems;
- automotive cybersecurity;
- applications of AI and ML to cybersecurity.

Each research topic lead to the publication of innovative results in peer-reviewed international conferences and journals. In many cases Mirco Marchetti contributed to the development of prototypes and systems used as demonstrators and for the evaluation of performance, reliability and security.

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## Honors and awards

### Featured article

- 02/2014      The paper: Luca Ferretti, Michele Colajanni, **Mirco Marchetti**, "Distributed, concurrent, and independent access to encrypted cloud databases" [19] has been selected as **Spotlight Paper** by the international journal *IEEE Transactions on Parallel and Distributed Systems*.

### Best paper awards

- 07/2013      **Best Paper Award** at the *International Conference on Emerging Security Information, Systems and Technologies* [45] for the paper: Luca Ferretti, Fabio Pierazzi, Michele Colajanni, **Mirco Marchetti**, "Security and confidentiality solutions for public cloud database services".
- 09/2006      **Best Paper Award** at the *IEEE/IST Workshop on Monitoring, Attack Detection and Mitigation* [63] for the paper: Michele Colajanni, **Mirco Marchetti**, "A Parallel Architecture for Stateful Intrusion Detection in High Traffic Networks".

### Honors

- 01/2006      Winner of a **3-years Scholarship** at the International Doctorate School in Information and Communication Technologies, organized by the Department of Information Engineering of the University of Modena and Reggio Emilia.
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## Service to the scientific community

### Organization of international conferences

NCA 2021	Financial Chair of <i>The 20th IEEE International Symposium on Network Computing and Applications (NCA 2021)</i> , November 2021, Cambridge, MA, USA.
ITASec 2021	Session Organizer of the session <i>Automotive/Smart-mobility cybersecurity</i> within the <i>Italian Conference on Cybersecurity (ITASEC 2021)</i> April 2021, online.
NCA 2020	Program Chair e Financial Chair of <i>The 19th IEEE International Symposium on Network Computing and Applications (NCA 2020)</i> , November 2020, Cambridge, MA, USA.
NCA 2019	Program Chair e Financial Chair of <i>The 18th IEEE International Symposium on Network Computing and Applications (NCA 2019)</i> , September 2019, Cambridge, MA, USA.
HotOS 2019	General Chair of <i>The 17th Workshop on Hot Topics in Operating Systems (HOTOS XVII)</i> , May 2019, Bertinoro, Italy.
NCA 2018	Program Chair e Financial Chair of <i>The 17th IEEE International Symposium on Network Computing and Applications (NCA 2018)</i> , November 2018, Cambridge, MA, USA.
SIW 2018	Workshop chair of the <i>IEEE International Smart Industries Workshop</i> , co-located with: <i>The 4th IEEE International Conference on Smart Computing (SMARTCOMP 2018)</i> June 2018, Taormina, Italy.
CYBER 2017	Chair and organizer of the special track “CYPHY: Security Issues and Solutions for Cyber-Physical Systems” of <i>The Second International Conference on Cyber-Technologies and Cyber-Systems</i> , November 2017, Barcelona, Spain.
NCA 2017	Financial Chair of <i>The 16th IEEE International Symposium on Network Computing and Applications (NCA 2017)</i> , October 2017, Cambridge, MA, USA.

### Session chair

NTMS 2011	Session “SEC III: Privacy”, within the <i>The Fourth IFIP International Conference on New Technologies, Mobility and Security</i> , February 2011, Paris, France.
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### Program committee member

NCA 2021	<i>The 20th IEEE International Symposium on Network Computing and Applications (NCA 2021)</i> , November 2021, Cambridge, MA, USA.
ITASec 2021	<i>Italian Conference on Cybersecurity (ITASEC 2021)</i> April 2021, online.
NCA 2020	<i>The 19th IEEE International Symposium on Network Computing and Applications (NCA 2020)</i> , November 2020, Cambridge, MA, USA.
TrustCom 2020	<i>The 19th IEEE International Conference on Trust, Security and Privacy in Computing and Communications</i> .

DLS 2020	<i>3rd Deep Learning and Security Workshop.</i>
SMARTCOMP 2019	<i>5rd IEEE International Conference on Smart Computing.</i>
NCA 2019	<i>The 18th IEEE International Symposium on Network Computing and Applications (NCA 2019), September 2019, Cambridge, MA, USA.</i>
SODA 2019	<i>30th ACM-SIAM Symposium on Discrete Algorithms.</i>
SMARTCOMP 2018	<i>4rd IEEE International Conference on Smart Computing.</i>
NCA 2018	<i>The 17th IEEE International Symposium on Network Computing and Applications (NCA 2018), November 2018, Cambridge, MA, USA.</i>
ICOIN 2018	<i>The 32nd International Conference on Information Networking, January 10-12 2018, Chiang Mai, Thailand.</i>
ICCISN 2018	<i>2018 International Conference on Computer Intelligent Systems &amp; Networking, January 3-5 2018, Hammamet, Tunisia.</i>
EscarEurope 2017	<i>Escar Europe 2017.</i>
SpaCSS 2017	<i>The 10th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage.</i>
SMARTCOMP 2017	<i>3rd IEEE International Conference on Smart Computing.</i>
EUROSEC 2017	<i>10th European Workshop on Systems Security.</i>
IFIPSEC 2017	<i>32nd International Conference on ICT Systems Security and Privacy Protection.</i>
CYBER 2017	<i>The Second International Conference on Cyber-Technologies and Cyber-Systems, November 12-16 2017, Barcelona, Spain.</i>
NCA 2017	<i>The 16th IEEE International Symposium on Network Computing and Applications (NCA 2017), October 2017, Cambridge, MA, USA.</i>
SCC 2017	<i>Third IEEE International Workshop on Sensors and Smart Cities, May 29-31 2017, Hong Kong.</i>
ITASEC 2017	<i>First Italian Conference on Cybersecurity, January 17-20 2017, Venice, Italy.</i>
ICOSST 2016	<i>The 10th IEEE International Conference on Open Source Systems and Technologies, December 15-17 2016, Lahore, Pakistan.</i>
SpaCSS 2016	<i>The 9th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage, November 16-18 2016, Zhangjiajie, China.</i>
ICACON 2015	<i>The 3rd International IBM Cloud Academy Conference, May 21-23 2015, Budapest, Hungary.</i>

- CSE 2011      *The 14th IEEE International Conference on Computational Science and Engineering*, August 24-26 2011, Dalian, China.
- CIS 2009      *The 2009 International Conference on Computational Intelligence and Security*, December 11-14 2009, Beijing, China.

### **Reviewer for international journals**

- 2017    IEEE Transactions on Information Forensics and Security (TIFS).
- 2017    Elsevier Information Sciences.
- 2017    IEEE Communications Magazine.
- 2017    IEEE Transactions on Service Computing (TSC).
- 2016    IEEE Transactions on Service Computing (TSC).
- 2016    Entropy, MDPI.
- 2015    Elsevier international journal on Expert Systems with Applications.
- 2015    Hindawi - The Scientific World Journal (TSWJ).
- 2014    IEEE Transactions on Cloud Computing (TCC).
- 2014    Springer Multimedia tools and applications (MTAP).
- 2013    IEEE Transactions on Parallel and Distributed Systems (TPDS).
- 2012    IEEE Transactions on Parallel and Distributed Systems (TPDS).
- 2008    Security and Communication Networks, Wiley.

### **Reviewer for international conferences**

- 2017    *NATO International Conference on Cyber Conflicts (CyCon 2017)*, May 31-June 2 2017, Tallin, Estonia.
- 2017    *Third IEEE International Workshop on Sensors and Smart Cities*, May 29-31 2017, Hong Kong.
- 2017    *IEEE International Conference on Communications (ICC'17)*, May 21-25 2017, Paris, France.
- 2017    *International Conference on Computing, Networking and Communications (ICNC 2017)*, January 26-29 2017, Silicon Valley, USA.
- 2017    *The First Italian Conference on Cyber Security (ITASEC 2017)*, January 17-20 2017, Venice, Italy.
- 2016    *The 10th IEEE International Conference on Open Source Systems and Technologies (ICOSST 2016)*, December 15-17 2016, Lahore, Pakistan.
- 2016    *The 8th IEEE International Conference on Cloud Computing Technology and Science (CloudCom 2016)*, December 12-15 2016, Luxemburg.

- 2016 *The 9th International Conference on Security, Privacy and Anonymity in Computation, Communication and Storage* (SpaCSS 2016), November 16-18 2016, Zhangjiajie, China.
- 2016 *The 8th IEEE International Conference on Cyber-enabled distributed computing and knowledge discovery* (CyberC 2016), October 13-14 2016, Chengdu, China.
- 2016 *NATO International Conference on Cyber Conflicts* (CyCon 2016), June 2016, Tallin, Estonia.
- 2015 *The 3rd International IBM Cloud Academy Conference* (ICACON 2015), May 21-23 2015, Budapest, Hungary.
- 2015 *Third International Symposium on Women in Computing and Informatics* (WCI-2015), August 10-13 2015, Kerala, India.
- 2012 *The 1st IEEE Workshop on Mobile Consumer Health Care Networks, Systems and Services* (MobiCHess-2012), June 10-15 2012, Ottawa, Canada.
- 2011 *The 14th IEEE International Conference on Computational Science and Engineering* (CSE-2011), August 24-26 2011, Dalian, China.
- 2010 *ACM Sigmetrics 2010*, June 14-18 2010, New York, NY, USA.
- 2009 *The 2009 International Conference on Computational Intelligence and Security* (CIS'09), December 11-14 2009, Beijing, China.
- 2008 *The 2008 IEEE/WIC/ACM International Conference on Web Intelligence and Intelligent Agent Technology* (WI'08), December 9-12 2008, Sydney, Australia.
- 2008 *ACM Sigmetrics 2008*, June 02-06 2008, Annapolis, MD, USA.
- 2008 *The IEEE 22nd International Conference on Advanced Information Networking and Applications* (AINA 2008), March 25-28 2008, Okinawa, Japan.
- 2007 *The 4th International Conference on Ubiquitous Intelligence and Computing* (UIC-07), July 11-13 2007, Hong Kong, China.
- 2006 *ACM/IFIP/USENIX 7th International Middleware Conference* (MIDDLEWARE 2006), November 27-December 1 2006, Melbourne, Australia.

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## Talks and seminars

### Invited seminars

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| Tel Aviv University      | Seminar “CRIS research activities on information security” at the <i>Blavatnik Interdisciplinary Cyber Research Center</i> (ICRC) of the Tel Aviv University, Israel, on January 27th, 2016.   |
| Università di San Marino | Seminar (italian language) “Sicurezza informatica: analisi dei rischi e difese” within the course <i>Diritto penale e Sicurezza Informatica</i> organized by the Department of Economy, Science and Law of the University of San Marino on October 17, 2015. |

Università di San Marino	Seminar (in italian) “Gli attacchi informatici: tecniche e dimostrazioni” within the course <i>La criminalità informatica</i> organized by the University Center of Education on Security (CUFS) of the University of San Marino on December 9th, 2015
Centro Intelligence Interforze	Seminar (in italian) “SQL Injection” for the <i>Reparto Informazioni e Sicurezza</i> of the <i>Centro Intelligence Interforze</i> (RIS-CII) of the Italian Armed Forces on December 2011
Università di San Marino	Seminar (in italian) “Gli attacchi informatici: tecniche e dimostrazioni” within the course <i>La criminalità informatica</i> organized by the University Center of Education on Security (CUFS) of the University of San Marino on February 19th, 2011
University of Texas at Austin	Seminar “Enhancing interoperability and stateful analysis of cooperative network intrusion detection systems” at the Department of <i>Computer Science</i> of the University of Texas at Austin in December 2007.

### Invited talks

CyberWeek 2016	<i>CyberWeek - Italy-Israel Workshop</i> , June 21 2016, Tel Aviv, Israel. Talk title: “Detecting cyberattacks to in-vehicle networks”.
Oil&Gas iQ 2015	<i>Cyber Security for energy and utilities</i> , September 28-30 2015, Amsterdam, Netherlands. Talk title: “Advanced Persistent Threats: The Next Generation Threat” and participation to the panel “Cyber Protection for the Future by Exploring Resilience and Redundancy”.
Cyber Defense 2015	<i>Cyber Defence Symposium</i> , May 13th-14th 2015, Chiavari, Italy. Talk title (in italian): “Framework per l’analisi temporale di sorgenti informative eterogenee”.
eCRIME 2015	<i>The economic impact of cybercrime</i> , January 19-20 2015, Rome, Italy. Talk title: “Temporal and semantic analysis of large open sources – the SNAPSHOT”.

### Talks

RTSI 2016	<i>2nd IEEE International Forum on Research and Technologies for Society and Industry</i> , September 2016, Bologna, Italy. Talk title: “Evaluation of entropy-based anomaly detection applied to in-vehicle networks”.
CyCon 2016	<i>8th NATO International Conference on Cyber Conflicts</i> , June 2016, Tallin, Estonia. Talk title: “Countering Advanced Persistent Threats through security intelligence and big data analytics”.
CSCloud 2015	<i>2nd IEEE International Conference on Cyber Security and Cloud Computing</i> , November 2015, New York, USA. Talk title: “Enforcing correct behavior without trust in cloud key-value databases”.
CyCon 2015	<i>7th NATO International Conference on Cyber Conflicts</i> , 26-29 May 2015, Tallin, Estonia. Talk title: “Supporting sense-making and decision-making through time evolution analysis of open sources”.
CSS 2011	<i>3rd International Workshop on Cyberspace Safety and Security</i> , September 2011, Milan, Italy. Talk title: “Identification of correlated network intrusion alerts”.

WoWMoM 2011	<i>12th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks</i> , June 2011, Lucca, Italy. Talk title: “Defeating NIDS evasion in Mobile IPv6 networks”.
NTMS 2011	<i>4th IFIP International Conference on New Technologies, Mobility and Security</i> , February 2011 Paris, France. Talk title: “The problem of NIDS evasion in mobile networks”.
ISC 2009	<i>12th Information Security Conference</i> , Pisa, Italy, September 2009. Talk title: “Peer-to-peer Architecture for Collaborative Intrusion and Malware Detection on a Large Scale”.
Q2SWinet 2008	<i>4th ACM International Workshop on QoS and Security for Wireless Networking</i> , October 2008, Vancouver, British Columbia, Canada. Talk title: “Adaptive traffic filtering for efficient and secure IP-mobility”
SEC 2008	<i>IFIP 23rd International Information Security Conference</i> , September 2008, Milano, Italy. Talk title: “Collaborative architecture for malware detection and analysis”.
ANCS 2007	<i>ACM/IEEE Symposium on Architectures for Networking and Communication Systems</i> , December 2007, Orlando, FL, USA. Talk title: “Enhancing interoperability and stateful analysis of cooperative network intrusion detection systems”.
NCA 2007	<i>6th IEEE International Symposium on Network Computing and Applications</i> , July 2007, Cambridge, MA, USA. Talk title: “Dynamic load balancing for network intrusion detection systems based on distributed architectures”.
MonAM 2006	<i>IEEE/IST Workshop on Monitoring, Attack Detection and Mitigation</i> , September 2006, Tübingen, Germany. Talk title: “A Parallel Architecture for Stateful Intrusion Detection in High Traffic Networks”.

## Research grants

2016-2020	Horizon 2020 European project “ASGARD - Analysis System for Gathered Raw Data”. Within this project Mirco Marchetti is: <ul style="list-style-type: none"> <li>• <i>Vice-representative in the Executive Board;</i></li> <li>• <i>Representative in the Assembly;</i></li> <li>• <i>Task leader of Task 7.2 - Intelligence application.</i></li> </ul>
2015-2017	Research project “CyberLab Italia-Israele” funded by the Italian Ministry of Foreign Affairs. Within this project Mirco Marchetti is: <ul style="list-style-type: none"> <li>• <i>Leader of research activities in the automotive security field.</i></li> </ul>
2015-2017	European research project “EUOF2CEN - European On-line Fraud Cyber Centre and Expert Network”.



- 2013-2015 European research project “SNAPSHOT - A Social Network Analysis Platform for the Support of European and HOMeland Threat prevention strategies”. Within this project Mirco Marchetti was:
- *Phase leader of Phase 5 - Development of efficient storage and retrieval techniques for large datasets;*
  - *Phase leader of Phase 17 - Models for statistical analysis of time series.*
- 2011-2013 Italian project of the Industria 2015 framework, “Nuove tecnologie sicure basate sull’ICT per la distribuzione e la vendita automatizzata di prodotti alimentari italiani sui mercati internazionali” (ITaste).
- 2010-2011 Italian research project within the PRIN framework “Dependable Off-The-Shelf based middleware systems for Large-scale Complex Critical Infrastructures” (DOTS-LCCI).
- 2008-2011 European research project FP7-ICT-SEC “Communication Middleware for Monitoring Financial Critical Infrastructures” (CoMiFin). Within this project Mirco Marchetti was:
- *Task leader for the task WP2 - Requirements definition - Security and Trust;*
  - *Task leader for the task WP3 - Framework - Distributed architecture.*
- 2006-2007 Research project funded by the Regional Department for Research, Industry and Innovation “Interactive and multimodal Web services for mobile users” (SWIMM).
- 2006 Research project funded by the FIRB framework, “Middleware for advanced services over large-scale, wired and wireless distributed services” (WEB-MINDS).

### **Corodination and participation to research groups**

- From 01/2009 Participation to the research group lead by Prof. Michele Colajanni, University of Modena and Reggio Emilia
- From 07/2016 Participation to the research group lead by Prof. Avishai Wool, University of Tel Aviv (Israel). Coordination of research activities in the automotive security field.
- 10/2008-02/2011 Participation to the research groups lead by Porf. Roberto Baldoni, University La Sapienza, and by Eliezer Dekel, IBM research, on fields related to security of financial critical infrastructures.
- 11/2007-06/2009 Participation to the research group lead by Prof. Lorenzo Alvisi and Prof. Mike Dahlin, University of Texas at Austin, on themes related to byzantine fault tolerant distributed systems

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### **Teaching activities**

- From 2020/2021 to 2021/2022 Teacher of the course *Sicurezza Informatica* at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia within the Master’s degree course in Computer Engineering.
- From 2018/2019 to 2021/2022 Teacher of the course *Automotive Cyber Security* at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia within the Master’s degree course in Computer Engineering and within the Master’s Degree Course Advanced Automotive Electronic Engineering.
- 2017/2018 Teacher of the course *Reti di calcolatori e lab.* at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia within the Bachelor’s degree course in Computer Engineering.
- From 2018/2019 to 2020/2021 Teacher of the course *Protocolli e architetture di rete* at the Department of Physics, Informatics and Mathematics (FIM) of the University of Modena and Reggio Emilia within the Bachelor’s degree course in Computer Science.
- 2017/2018 Teacher of the course *Protocolli e architetture di rete* (6 CFU) at the Department of Physics, Informatics and Mathematics (FIM) of the University of Modena and Reggio Emilia within the Bachelor’s degree course in Computer Science.
- 2016/2017 Teacher of the course *Reti di calcolatori e lab.* (3 CFU) at the Engineering Department “Enzo Ferrari” (DIEF) of the University of Modena and Reggio Emilia within the Bachelor’s degree course in Computer Engineering and Science.
- From 2013-2014 to 2016-2017 Teacher of the course *Internet* (7 CFU) within the Advanced Course in “Internet-based systems and services” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces at Chiavari.
- From 2014-2015 to 2016-2017 Teacher of the course *Architetture per comunicazioni sicure* (5 CFU) within the 1st level Master “Cyber Defence” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces at Chiavari.
- 2014-2015 Teacher of the course *Ethical Hacking e Penetration Test: dalla teoria alla pratica* (28 hours) organized by the Scuola Reiss Romoli.
- 2013-2014 Teacher of the course *Sicurezza delle reti* (40 hours) within the 1st level Master “Tecnico di ricerca specializzato nell’uso e progettazione di reti ed ambienti software distribuiti” of the University of Messina, Italy.
- From 2013-2014 to 2015-2016 Teacher of the course *Computer forensics per sistemi Unix/Linux* (4 CFU) within the 1st level Master “Digital Forensics” organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces at Chiavari.
- From 2011-2012 to 2013-2014 Teacher of the course *Architetture sicure per reti wired e wireless* within the 2nd level Master “Sicurezza Informatica Disciplina Giuridica” of the University of Modena and Reggio Emilia.
- 2011-2012 Teacher of the course *Applicazioni basate su tecnologie Web e basi di dati: Vulnerabilità e metodologie per la sicurezza dei sistemi* within the Piano di Formazione sulla Sicurezza of the University of Modena and Reggio Emilia.
- Dal 2009-2010 al 2010-2011 Teacher of the course *Sicurezza per sistemi in reti locali* within the 2nd level Master “Sicurezza Informatica Disciplina Giuridica” of the University of Modena and Reggio Emilia.

From 2006-2007 to 2016-2017 Teaching assistant for the courses *Sicurezza Informatica* and *Sicurezza Informatica e Laboratorio* within the Master's degree course in Computer Engineering and Science of the University of Modena and Reggio Emilia.

### Thesis supervisor

Supervisor of 9 theses of the 1st level Master "Cyber Defence" organized by the University of Modena and Reggio Emilia for the Telecommunication School of the Italian Armed Forces of Chiavari.

Supervisor of 6 theses of the 2nd level Master "Sicurezza Informatica Disciplina Giuridica" of the University of Modena and Reggio Emilia.

Co-supervisor of more than 40 theses related to cybersecurity for the Master's degree course in Computer Engineering and Science.

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### Technology transfer

Results of research in the field of information security led to the delivery of industrial research and professional training for companies, organization and public administrations.

### Industrial research

Comune di Modena 06/2017	Design and execution of Vulnerability Assessments.
Accademia Militare di Modena 06/2017	Design and execution of Vulnerability Assessments.
Magneti Marelli S.p.a. 01/2016-today	Design of innovative systems for improving the security of software and networks components of modern vehicles. Part of the project is based on research results presented in the paper [37]. Within this project Mirco Marchetti coordinates the research activities of a research assistant.
Cryptolab S.r.l. 02/2014-08/2015	Analysis of the robustness of partially homomorphic encryption algorithms. Within this project Mirco Marchetti led the research activities.
Comune di Modena 01/2013-06/2013	Design and implementation of intrusion detection systems based on network traffic analysis. Vulnerability assessment of Web applications.
eBilling S.p.a. 11/2012-06/2013	Design and implementation of a performance monitoring system and anomaly detector.
Expert System S.p.a. 12/2012 - 05/2013	Design and implementation of software modules characterized by high security guarantees.

Elsag-Datamat S.p.a.  
06/2009-12/2010

Design and implementation of distributed architecture for infosharing and cooperative analysis of security events based on research results published in [53, 52, 22].

## Professional training

Granarolo S.p.a.  
02/2016

Seminar “Threat awareness and management” (in Italian) organized by Granarolo S.p.a. for staff training (12 hours).

Banca d’Italia  
10/2015

Staff training related to tools and architectures for Big Data and security analytics.

Polizia di Stato  
03/2015

Teacher of the course *Internet e il Web* within a training initiative for the staff of Polizia Postale e delle Comunicazioni at the Centro Addestramento Polizia di Stato (CAPS).

Italian Space Agency  
02/2015

Seminar “L’ICT e i temi della sicurezza” for staff of the Italian Space Agency on February 17-18 and 25-26 2015, 18 hours.

Polizia Postale e delle  
Comunicazioni  
06/2015

Seminars “Cross Site Scripting”, “SQL Injection” and “Tecniche di anonimizzazione” for the staff of the “Centro Nazionale Anticrimine Informatico per la Protezione delle Infrastrutture Critiche” (CNAIPIC) of the Polizia Postale e delle Comunicazioni (12 hours).

Modena Municipality  
01/2013-06/2013

Professional training for Web developers of the Modena Municipality aimed at teaching best practices for the development of secure applications.

Expert System S.p.a.  
12/2012 - 05/2013

Highly specialized professional training in several fields of information security.

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Last updated on July 8, 2024